Bridge Unit Request for Soil Properties

Job #: _____
County: _____
Bridge #: _____
Route: _____

N = N60 = SPT Blowcounts per 12" or per 300 mm to 60% machine efficiency for granular soil in Category A or for cohesive soil in Category A, B, C, or D.
N = (N1)60 = SPT Blowcounts per 12" or per 300 mm, corrected to 1 TSF overburden and to 60% machine efficiency for granular soil in Category B, C, or D.
ϕ = phi angle, internal angle of friction, degrees.
S_u = For clay, the undrained shear strength. For rock, the shear capacity, ksf or kPa.
γ = Weight per unit volume, pcf or kN/m^3 (Saturated unit weight below water table, Natural unit weight above water table).
E = Elastic Modulus of soil, ksf or kPa, where: E = 2*(1+v)*G and v = Poisson's ratio = 0.35 (sand), 0.45 (clay), or 0.20 (rock).
Em = Rock mass modulus for intact rock, ksf or kPa (AASHTO Div. I, Section 4.4.8.2).
RQD = Rock Quality Designation, %.

Bent No's.	Structural Type (Seismic Category)	N #-#-#	ϕ (degrees)	S_u (ksf or kPa)	γ (pcf or kN/m^3)	E or Em (ksf or kPa)	RQD (%)	Allowable friction (ksf or kPa)	Allowable Bearing (ksf or kPa)	* F.S. Liquefaction	Water table Elev. (ft or m)	** AASHTO soil profile type
	Bridge (Category A)	X									X	
	Bridge (Category B, C, or D)	X	X	X	X	X				X	X	X
	Drilled Shafts (Category A)	X	X	X	X	X	X	X	X		X	
	Drilled Shafts (Category B, C, or D)	X	X	X	X	X	X	X	X	X	X	X
	Retaining Wall (Category A)	X	X		X						X	
	Retaining Wall (Category B, C, or D)	X	X		X						X	

*** Provide safety factors for liquefaction for the recommended seismic magnitude at the bridge site. The magnitude shall be based on the probabilities of exceedance of 10% in 50 years (approximately corresponding to a return period of 500 years).**
**** Provide soil profile type (type I, II, III, or IV based on AASHTO Div. I-A, Sec. 3.5) at each boring location.**
Note: If an item above is checked, then "X" indicates the soil properties required at each boring location.

Other required soil properties:
(or special instructions)
1: _____
2: _____
3: _____
4: _____